

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A variable flexure-based fluid filter apparatus for filtering particles from a fluid, comprising:

- a variable flexure-based fluid filter body,
- a fluid passage in said body,
- a fluid inlet connected to said fluid passage,
- a fluid outlet connected to said fluid passage,
- a flexure unit connected to said passage ~~that provides a variable size passage between said fluid inlet and said fluid outlet, and~~
- a an expandable piezo-electric stack connected to said passage and positioned proximate said flexure unit,

- a variable size passage between said flexure unit and said expandable piezo-electric stack, wherein said piezo-electric stack can be expanded for ~~provides deflection of said flexure unit~~ adjusting the size of said variable size passage for filtering said particles from said fluid and wherein expansion of said piezo-electric stack provides deflection of said flexure unit.

- a particle sequestering area connected to said fluid passage and located adjacent said flexure unit, said variable size passage, and said expandable piezo-electric stack, and

- a window in said body operatively connected to said particle sequestering area wherein said window allows visual inspection of said particle sequestering area.

2. (Previously Presented) The variable flexure-based fluid filter apparatus for filtering particles from a fluid of claim 1 wherein said flexure unit is a steel flexure unit.

3. (Previously Presented) The variable flexure-based fluid filter apparatus for filtering particles from a fluid of claim 1 including a strain gauge operatively connected to said piezo-electric stack and said flexure unit that provides feedback on said deflection of said flexure unit.

4. (Previously Presented) The variable flexure-based fluid filter apparatus for filtering particles from a fluid of claim 1 including a set screw operatively connected to said piezo-electric stack.

5. (Currently Amended) The variable flexure-based fluid filter apparatus for filtering particles from a fluid of claim 1 ~~including a~~ wherein said window operatively connected to said ~~variable-size passage~~ particle sequestering area is located opposite said piezo-electric stack.

6. (Currently Amended) The variable flexure-based fluid filter apparatus for filtering particles from a fluid of claim 5 1 wherein said window is a sapphire window.

7. (Previously Presented) The variable flexure-based fluid filter apparatus for filtering particles from a fluid of claim 1 wherein said variable size passage has a size range to accommodate particles from 1 micron to 500 microns in size.

8. (Previously Presented) The variable flexure-based fluid filter apparatus for filtering particles from a fluid of claim 1 wherein said variable size passage accommodates particles that are beads.

9. (Previously Presented) The variable flexure-based fluid filter apparatus for filtering particles from a fluid of claim 8 wherein said beads include optically labeled tags.

10. (Previously Presented) The apparatus for filtering particles from a fluid of claim 8 wherein said beads include bead surfaces and antibodies or antigens on said bead surfaces.

11. (Currently Amended) A method of filtering particles from a fluid, comprising the steps of:

providing a fixture with a variable size passage by positioning a flexure unit that will deflect ~~to provide said variable size passage,~~

positioning a an expandable piezo-electric stack proximate said flexure unit wherein said piezo-electric stack can be expanded for ~~provides deflection of said flexure unit~~ adjusting the size of said variable size passage and wherein expansion of said piezo-electric stack provides deflection of said flexure unit,

providing a particle sequestering area connected to said variable size passage and located adjacent said flexure unit and said expandable piezo-electric stack,

providing a window operatively connected to said particle sequestering area wherein said window allows visual inspection of said particle sequestering area,

introducing an inlet fluid flow stream containing said particles to said fixture with a variable size passage, and

causing said expandable piezo-electric stack to expand ~~provide deflection of said flexure unit~~ setting said variable size of said variable size passage so that said fluid passes through said variable size passage but said particles do not pass through said variable size passage, and

making a visual inspection of said particle sequestering area through said window to determine whether said particles are in said particle sequestering area.

12. (Cancelled)

13. (Currently Amended) The method of filtering particles from a fluid of claim 11 including a step of providing a strain gauge operatively connected to said expandable piezo-electric stack and wherein said step of setting said size of

said variable size passage is accomplished using said expandable piezo-electric stack and said strain gauge operatively connected to said expandable piezo-electric stack.

14. (Currently Amended) The method of filtering particles from a fluid of claim 11 including a step of providing a set screw operatively connected to said expandable piezo-electric stack and wherein said step of setting said size of said variable size passage is accomplished using said expandable piezo-electric stack and said set screw operatively connected to said expandable piezo-electric stack.

15. (Cancelled)

16. (Currently Amended) The method of filtering particles from a fluid of claim 11 wherein said step of causing said expandable piezo-electric stack to provide deflection of said flexure unit allows said fluid to pass through said variable size passage but particles from 1 micron to 500 microns in size do not pass through said variable size passage.

17. (Previously Presented) The method of filtering particles from a fluid of claim 16 wherein said particles are beads.

18. (Previously Presented) The method of filtering particles from a fluid of claim 16 wherein said particles are beads and including the step of attaching optically labeled tags to said beads.

19. (Previously Presented) The method of filtering particles from a fluid of claim 16 wherein said particles are beads and including the step of attaching antibodies or antigens to said beads.

20. (Cancelled)

21. (Cancelled)